

from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

*Z-direction* means in the direction of the vehicle's Z-axis, which is perpendicular to the X- and Y-axes. The Z-direction is positive in a downward direction.

[73 FR 2180, Jan. 14, 2008, as amended at 76 FR 47486, Aug. 5, 2011]

**§ 563.6 Requirements for vehicles.**

Each vehicle equipped with an EDR must meet the requirements specified

in § 563.7 for data elements, § 563.8 for data format, § 563.9 for data capture, § 563.10 for crash test performance and survivability, and § 563.11 for information in owner's manual.

**§ 563.7 Data elements.**

(a) *Data elements required for all vehicles.* Each vehicle equipped with an EDR must record all of the data elements listed in Table I, during the interval/time and at the sample rate specified in that table.

TABLE I—DATA ELEMENTS REQUIRED FOR ALL VEHICLES EQUIPPED WITH AN EDR

Data element	Recording interval/time <sup>1</sup> (relative to time zero)	Data sample rate (samples per second)
Delta-V, longitudinal .....	0 to 250 ms or 0 to End of Event Time plus 30 ms, whichever is shorter.	100
Maximum delta-V, longitudinal .....	0–300 ms or 0 to End of Event Time plus 30 ms, whichever is shorter.	N/A
Time, maximum delta-V .....	0–300 ms or 0 to End of Event Time plus 30 ms, whichever is shorter.	N/A
Speed, vehicle indicated .....	–5.0 to 0 sec .....	2
Engine throttle, % full (or accelerator pedal, % full) .....	–5.0 to 0 sec .....	2
Service brake, on/off .....	–5.0 to 0 sec .....	2
Ignition cycle, crash .....	–1.0 sec .....	N/A
Ignition cycle, download .....	At time of download <sup>3</sup> .....	N/A
Safety belt status, driver .....	–1.0 sec .....	N/A
Frontal air bag warning lamp, on/off <sup>2</sup> .....	–1.0 sec .....	N/A
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, driver.	Event .....	N/A
Frontal air bag deployment, time to deploy, in the case of a single stage air bag, or time to first stage deployment, in the case of a multi-stage air bag, right front passenger.	Event .....	N/A
Multi-event, number of event .....	Event .....	N/A
Time from event 1 to 2 .....	As needed .....	N/A
Complete file recorded (yes, no) .....	Following other data .....	N/A

<sup>1</sup>Pre-crash data and crash data are asynchronous. The sample time accuracy requirement for pre-crash time is –0.1 to 1.0 sec (e.g., T = –1 would need to occur between –1.1 and 0 seconds.)

<sup>2</sup>The frontal air bag warning lamp is the readiness indicator specified in S4.5.2 of FMVSS No. 208, and may also illuminate to indicate a malfunction in another part of the deployable restraint system.

<sup>3</sup>The ignition cycle at the time of download is not required to be recorded at the time of the crash, but shall be reported during the download process.

(b) *Data elements required for vehicles under specified conditions.* Each vehicle equipped with an EDR must record each of the data elements listed in column 1 of Table II for which the vehicle

meets the condition specified in column 2 of that table, during the interval/time and at the sample rate specified in that table.

TABLE II—DATA ELEMENTS REQUIRED FOR VEHICLES UNDER SPECIFIED MINIMUM CONDITIONS

Data element name	Condition for requirement	Recording interval/time <sup>1</sup> (relative to time zero)	Data sample rate (per second)
Lateral acceleration .....	If recorded <sup>2</sup> .....	N/A .....	N/A
Longitudinal acceleration .....	If recorded .....	N/A .....	N/A
Normal acceleration .....	If recorded .....	N/A .....	N/A